

WHAT IS CLAIMED IS:

1. An MgB_2 compound sheath superconducting wire wherein a single-core wire or a multi-core wire coated by a metal having a specific electric resistance $7 \mu \Omega \text{ cm}$ or below at a room temperature is assembled into a base metal having a Vickers hardness 50 or above at a room temperature and one or more holes.
2. An MgB_2 compound sheath superconducting wire wherein a single-core wire or a multi-core wire coated by a metal having a Vickers hardness 50 or above at a room temperature is assembled into a base metal having a specific electric resistance $7 \mu \Omega \text{ cm}$ or below at a room temperature and one or more holes.
3. An MgB_2 compound sheath superconducting wire as claimed in claim 1, wherein a plurality of the single-core or multi-core wires are assembled into the base metal and they are twisted.
4. An MgB_2 compound sheath superconducting wire wherein an MgB_2 superconductor is assembled into a base metal having a specific electric resistance $7 \mu \Omega \text{ cm}$ or below at a room temperature and a Vickers hardness 50 or above at a room temperature.
5. An MgB_2 compound sheath superconducting wire as claimed in claim 1, wherein the density of the superconducting substance processed to a final product is 90% or above with respect to a theoretical density.
6. A method for manufacturing an MgB_2 compound sheath superconducting wire comprising the steps of:

arranging a junction auxiliary material on an intermediate layer between an inner circumference of hole provided on a base metal and an outer circumference of a single-core or a multi-core wire, and

applying a thermal treatment to unify the base metal and the core wire.

7. A method for manufacturing an MgB_2 compound sheath superconducting wire as claimed in claim 6, wherein the junction auxiliary material contains at least one selected from a group consisting of copper, silver, gold, palladium, aluminum, silicon, indium, tin, zinc, iron, lead, nickel, manganese, and boron.